REMARKS

The specification has been amended to address the informality noted by the Examiner. And, claims 24-73 have been renumbered as claims 22-71, and the claim dependencies changed, as needed.

The finality of the restriction/election requirement is noted. Applicants confirm their previous election, and request that the non-elected claims be maintained in this application for possible rejoinder and/or for filing of a divisional application.

Claim 8 has been amended to address the 112 rejection. Additionally, independent claims 1, 30 and 39 have been amended to better define the claimed invention and better distinguish the claimed invention from the prior art, and the dependencies of several of the renumbered dependent claims have been corrected. No new matter has been entered by any of the foregoing amendments.

Turning to the art rejections, and considering first the rejection of claims 1, 2, 4, 7-13, 17, 22, 23, 25, 26, 30-32, 35, 36, 39 and 64 as obvious from Bennett et al. in view of Rothemund and further in view of Lackritz et al., in rejecting the claims the Examiner acknowledges the primary reference Bennett et al., which is a computing device, does not teach a storage device; however, the Examiner looks to Rothemund as supplying this missing teaching, acknowledging however that Rothemund fails to teach a storage block for storing the strands or a transport mechanism for moving the strands. The Examiner then cherry picks from yet a third reference, Lackritz et al. to supply the missing teachings to Rothemund.

Lackritz et al. is nothing more than a separation device based on capillary electrophoresis. There is no teaching or suggestion in Lackritz et al. of collectively moving

strands between the write head and the storage block or in response to a read command between the storage block and a read head, and then to a dump or back to the storage block as required by Applicants' independent claim 1, as amended. Nor is there any teaching or suggestion of Lackritz et al. of a storage device in which strands of molecular material are selectively moveable between different locations on the substrate in response to an external command as required by independent claim 30, as amended. Nor is there teaching or suggestion within the four corners of Lackritz et al. of a storage device in which a transport mechanism moves strands between write stations and parking lots and between parking lots and work stations in response to a read command, and then to a dump or back to the parking lots as required by independent claim 39. Accordingly, it is submitted that no combination of Bennett et al., Rothemund and Lackritz et al. reasonably could be said to achieve or render obvious any of independent claims 1, 30 and 39, or the several claims directly or indirectly dependent thereon, as the case may be.

The rejection of claims 1-3 as obvious from Bennett et al. in view of Rothemund and further in view of Lackritz et al. and further in view of Meller et al. likewise is in error. The deficiencies of the combination of Bennett et al., Rothemund and Lackritz et al. are discussed above vis-à-vis the rejection of claim 1.

In the rejection, the Examiner acknowledges that the combination of Bennett et al., Rothemund and Lackritz et al. fails to teach use of a current meter to monitor ionic current through a nanopore. Meller is concerned with sequencing. Meller does not relate to data storage. Thus, essential features missing from the primary combination are not supplied by Meller et al. Accordingly, no combination of Bennett et al., Rothemund, Lackritz et al. and

Meller et al. reasonably could be said to achieve or render obvious claim 1, or claims 2 and 3 which depend thereon.

Turning to the rejection of claims 1, 24, 30, 31, 33, 37 and 38 as obvious from Bennett et al. in view of Rothemund in view of Lackritz et al., and further in view of Wang et al., the deficiency of the primary combination of Bennett et al., Rothemund and Lackritz et al. vis-à-vis independent claims 1 and 30 have been discussed above. It is not seen that Wang et al. supplies the missing teachings to the primary combination to achieve or render obvious claim 1 or claim 30 or any of the claims which depend directly or indirectly thereon. The Examiner cites Wang et al. as teaching controlling pads of nonoparticles using both mocro-fluidics and light. Even assuming arguendo Wang et al. is as the Examiner characterizes it, the more basic and essential features missing from the primary combination are not supplied by Wang et al. Thus, no combination of the applied art would achieve claim 1 or claim 30 or any of the claims which depend thereon.

Finally, turning to the rejection of claims 1, 2, 4 and 6 as obvious from Bennett et al. in view of Rothemund in view of Lackritz et al. and further in view of Lee et al., the deficiencies of the primary art combination vis-à-vis claim 1 are discussed above. Lee et al. does not supply the missing teachings. The Examiner cites Lee et al. as using AFM to sequence DNA via micro-fluidics with the aid of AFM. Even assuming arguendo Lee et al. is as the Examiner characterizes it, the more basic and essential features missing from the primary combination are not supplied by Lee et al. Accordingly, no combination of the applied art would achieve or render obvious claim 1, or claims 2, 4 and 6 which depend directly or indirectly thereon.

In summary, the prior art that the Examiner has cited deals with two different topics: (i) computation using macromolecules, molecular Turing machines, and (ii) sequencing DNA and RNA molecules. In Applicants' claimed invention macromolecules are used to store information (as distinct from computation). In sequencing the object is to know the exact sequence of the individual bases of the macromolecule as opposed to Applicants' invention in which Applicants' may be encoding e.g., a binary "zero" as a sequence of one hundred consecutive A's (A for adenosine, one of four DNA bases), and a binary "one" as a sequence of one hundred fifty C's (C for cytosine). All Applicants need to know is which one of these two (0 or 1) is being written onto the molecule; the exact details of the base sequence are not important for Applicants' application.

A Turing machine is a universal computer. It can perform all the logical operations needed to make arbitrarily complex computations. Applicants' claimed system is a data storage device. Applicants do not "compute" anything. Rather, Applicants take the data from the computer (or in general, from the user), convert it into a sequence of bases of a given macromolecule (which doesn't even have to be DNA or RNA), and then store the result the resulting macromolecule in a parking lot. Eventually, when the computer (or user) needs the stored data, Applicants take the macromolecule from the parking lot, decode it's sequence of 0's and 1's, and either return the molecule to it's parking space or discarded, in case it is no longer needed. In other words, Applicants are employing macromolecules to store data.

The indicated allowability over the art of claims 14-16, 18, 21, 27 and 65-71 is noted, with thanks. However, in view of the foregoing amendment and comments, it is believed that all of the presently pending claims are allowable over the art.

Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action is respectfully requested.

Form PTO-2038 in the amount of $60.00 to cover the cost of the Petition for a One Month Extension of Time accompanies this Amendment.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391.

Respectfully submitted,

The PTO did not receive the following listed Item(s) C. Card for $60.00

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on _____ August 14, 2007 _____, at Tucson, Arizona.

By_____

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